

HOSPITAL DRIVE LIFT STATION RATON, NEW MEXICO

APRIL 2015

I, KAREN STEARNS, NEW MEXICO REGISTERED PROFESSIONAL ENGINEER NO. 14085, HEREBY CERTIFY THAT PROJECT DESIGN DOCUMENTS HAVE BEEN PREPARED BY MYSELF IN ACCORDANCE WITH APPLICABLE STANDARDS AND AGENCY REQUIREMENTS.

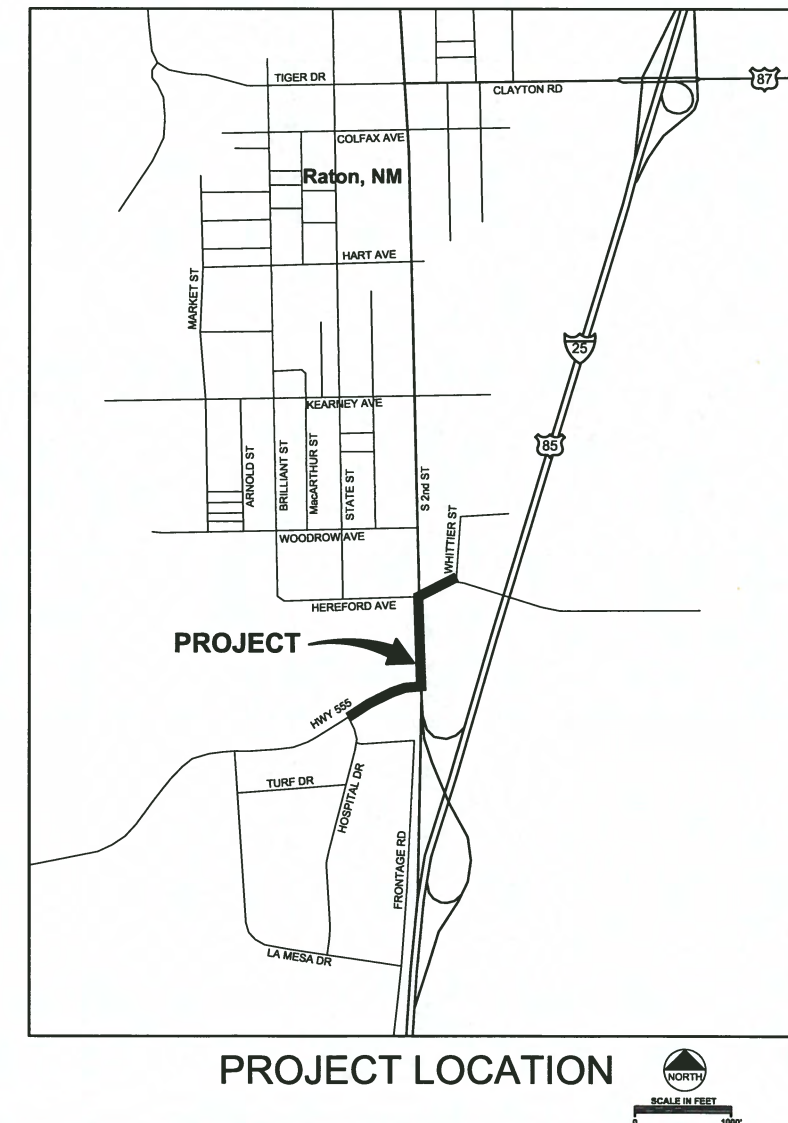
**PROJECT ENGINEER:
KAREN M. STEARNS, P.E.
ENGINEERING ANALYTICS, INC.
219 S. 2ND ST.
RATON, NEW MEXICO 87740
575-445-7192**

FUNDING AGENCY:
CITY OF RATON WATER WORKS

CONTRACTING AGENCY:
CITY OF RATON
224 SAVAGE AVENUE
POST OFFICE BOX 910
RATON, NEW MEXICO 87740

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EA Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

COVER SHEET AND
SITE LOCATION

Drawn by:	RDP
Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	April 27, 2015

SHEET
G-1.0

ABBREVIATIONS

AB	ANCHOR BOLT	MH	MANHOLE
AC	ACRE	MIN	MINIMUM
AC-FT	ACRE-FEET	N	NORTHING
APPROX	APPROXIMATE	NA	NOT APPLICABLE
B, BOTT	BOTTOM	NGS	NATIONAL GEODETIC SURVEY
CL	CENTERLINE	NO	NUMBER
CC	CENTER TO CENTER	NTS	NOT TO SCALE
CFS	CUBIC FEET PER SECOND	OC	ON CENTER
CJ	CONTROL JOINT	OPNG	OPENING
CLR	CLEAR	OW	OUTLET WORKS
CMP	CORRUGATED METAL PIPE	PC	POINT OF CURVATURE
CSK	COUNTERSINK	PL	PLATE (STEEL)
CTD	CENTERED	PT	POINT OF TANGENCY
CTJ	CONSTRUCTION JOINT	PVI	POINT OF VERTICAL INTERSECTION
CY	CUBIC YARD	PVC	POLYVINYL CHLORIDE
DEMO	DEMOLISH	PZ	PIEZOMETER
DET	DETAIL	R	RADIUS
DIA	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DIP	DUCTILE IRON PIPE	REIN	REINFORCEMENT
DNS	DO NOT SCALE	REQD	REQUIRED
D/S	DOWNSTREAM	REV	REVISION
E	EASTING	ROW	RIGHT-OF-WAY
EA	EACH	S	SLOPE (FT/FT)
EE	EACH END	SAN	SANITARY SEWER
EF	EACH FACE	SCH	SCHEDULE
EJ	EXPANSION JOINT	SHT	SHEET
EL	ELEVATION	SMH	SANITARY MANHOLE
EOP	END OF PROJECT	SQ	SQUARE
EQUIP	EQUIPMENT	SS	STAINLESS STEEL
EST	ESTIMATED	STA	STATION
EW	EACH WAY	STD	STANDARD
EX	EXAMPLE	T, TOP	TOP
EXIST	EXISTING	TBD	TO BE DETERMINED
EXP	EXPANSION	TH	TEST HOLE
FT	FEET	TOF	TOP OF FOOTING ELEVATION
FTG	FOOTING	TOW	TOP OF WALL ELEVATION
GH	GAGE HEIGHT	TP	TEST PIT
HORIZ	HORIZONTAL	TSLE	TOP OF SLAB ELEVATION
HS	HEADED STUD	TSTE	TOP OF STEEL ELEVATION
IN	INCHES	TYP	TYPICAL
INV	INVERT	UNO	UNLESS NOTED OTHERWISE
JT	JOINT	U/S	UPSTREAM
L _d	DEVELOPMENT LENGTH	VERT	VERTICAL
LF	LINEAR FEET	WL	WATER LEVEL
MAX	MAXIMUM	WS	WATERSTOP

CIVIL SYMBOLS AND LINES

	EXISTING GROUND SURFACE CONTOURS (1' INTERVAL)
	EXISTING FENCE
	UNDERGROUND TELEPHONE LINE
	OVERHEAD ELECTRIC LINE
	EXISTING ELECTRIC LINE
	EXISTING GAS LINE
	EXISTING SEWER LINE
	EXISTING WATER LINE
	EXISTING CULVERT
	PROPERTY BOUNDARY
	PROPOSED PIPELINE (UNDERGROUND ROUTE)
	EXISTING SEWER MANHOLE
	PROPOSED SEWER MANHOLE
	BORING
	EXISTING STREET SIGN
	EXISTING POWER POLE
	EXISTING LIGHT POLE
	EXISTING TREE
	EXISTING FIRE HYDRANT
	INDICATES CROSS SECTION LOCATION. D REFERS TO THE CROSS SECTION DESIGNATION. 6 REFERS TO THE SHEET NUMBER WHERE THE SECTION IS SHOWN. WHEN SHOWN ON THE SECTION LABEL, THIS NUMBER REFERS TO THE SHEET NUMBER WHERE THE SECTION IS CUT.
	INDICATES DETAIL LOCATION. 2 REFERS TO THE DETAIL DESIGNATION. 4 REFERS TO THE SHEET NUMBER WHERE THE DETAIL IS INDICATED. WHEN SHOWN ON THE DETAIL, THIS NUMBER REFERS TO THE SHEET NUMBER WHERE THE DETAIL IS SHOWN.

GENERAL NOTES

- NOT ALL EXISTING UTILITIES ARE SHOWN IN PLAN OR PROFILE DUE TO INSUFFICIENT INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE UTILITIES PRIOR TO CONSTRUCTION. CALL NEW MEXICO ONE CALL BEFORE YOU DIG (UTILITY LOCATES) 1-800-321-2537 OR 811.
- CONTRACTOR MUST ENSURE THAT ALL EXISTING UTILITIES, ONSITE STRUCTURES, ADJACENT STRUCTURES AND SITES ARE PROTECTED DURING CONSTRUCTION. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE ALL DAMAGE IS REPAIRED TO EQUAL OR BETTER THAN EXISTING.
- CONTRACTOR MUST ENSURE THAT ALL ENVIRONMENTAL CONDITIONS ARE PROTECTED THROUGHOUT CONSTRUCTION AND THE SITE IS RESTORED TO A STATE ACCEPTABLE TO THE ENGINEER AND CITY OF RATON.
- PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT(S) FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY.
- PIPELINE TO STAY A MINIMUM OF 2' AWAY FROM EXISTING BURIED UTILITIES, WHICH MAY REQUIRE COORDINATION WITH THE UTILITY COMPANIES OR POTHOLING IN ORDER TO DETERMINE DEPTHS OF EXISTING UTILITIES. CONTRACTOR TO CONTACT RATON WATER WORKS IMMEDIATELY UPON DISCOVERY OF CONFLICT BETWEEN PIPELINE ALIGNMENT AND EXISTING UTILITIES.
- MAINTAIN A MINIMUM 4' DISTANCE FROM POWER POLES.
- ALL LENGTHS OF HORIZONTAL BORES TO BE FIELD VERIFIED BY CONTRACTOR.
- RATON WATER WORKS TO COORDINATE WITH RATON NATURAL GAS AT LEAST THREE (3) WEEKS BEFORE CONSTRUCTION COMMENCEMENT FOR GAS SERVICE RELOCATION TO NMDOT METER AT 2ND STREET AND HEREFORD AVENUE. CONTRACTOR TO VERIFY GAS SERVICE LINE RELOCATION PRIOR TO CONSTRUCTION.
- CONTRACTOR TO PROVIDE TRAFFIC CONTROL PLANS TO RATON WATER WORKS PRIOR TO CONSTRUCTION. TRAFFIC CONTROL WITHIN NMDOT RIGHT-OF-WAY REQUIRES NMDOT PERMIT. CONTRACTOR TO PROVIDE ONE (1) LANE OPEN TO VEHICULAR TRAFFIC AT ALL TIMES ON HOSPITAL DRIVE, SUFFICIENT FOR PASSAGE OF EMERGENCY VEHICLES. CONTRACTOR TO PROVIDE ONE (1) LANE OPEN EACH DIRECTION TO VEHICULAR TRAFFIC ON YORK CANYON ROAD (NM 555) AND SOUTH 2ND STREET. CONTRACTOR TO PROVIDE ONE (1) LANE OPEN TO VEHICULAR TRAFFIC ON HEREFORD AVENUE AND WHITTIER STREET.
- ALL CONSTRUCTION SHALL COMPLY WITH THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2006 EDITION.
- CONSTRUCTION OF THE PIPELINE FROM THE LIFT STATION VALVE VAULT TO THE FINAL RECEIVING MANHOLE IN WHITTIER STREET SHALL BE TRENCHLESS (THE TURN AT STATION 11+32 IS EXCEPTED FROM THIS REQUIREMENT). CONTRACTOR HAS OPTION TO TRENCH OR USE TRENCHLESS METHODS FOR THE SECTION OF PIPELINE FROM THE EXISTING MANHOLE IN HOSPITAL DRIVE TO THE LIFT STATION AND FROM MH-1 TO THE LIFT STATION.
- ANY PAVEMENT CUTS FOR TRENCH OR BORE PITS SHALL BE BUILT AND REPLACED PER STD DWG 2465 THICKNESS.
- THE EXISTING LIFT STATION, GRAVITY LINES AND FORCE MAIN ARE TO REMAIN INTACT AND OPERATIONAL DURING CONSTRUCTION. RATON WATER WORKS REQUIRES ONE (1) WEEK AFTER CONSTRUCTION OF NEW SEWER LIFT STATION AND PIPELINES ARE COMPLETE IN ORDER TO VERIFY THE NEW SYSTEM IS FULLY OPERATIONAL. ONLY AFTER RATON WATER WORKS IS SATISFIED WITH THE OPERATION OF THE NEW SYSTEM MAY THE CONTRACTOR ABANDON THE APPROPRIATE SECTIONS OF THE EXISTING SYSTEM, AS IDENTIFIED IN THE PLANS. CONTRACTOR TO SUBMIT A PHASING PLAN TO DEMONSTRATE COMPLIANCE WITH THESE OBJECTIVES PRIOR TO CONSTRUCTION.
- FORCE MAINS SHALL BE PRESSURE TESTED AT A MINIMUM OF 50 PSI ABOVE THE DESIGN WORKING PRESSURE OF ±45 PSI.
- ALL PUMPS SHALL BE TESTED BY THE MANUFACTURER AT THE FACTORY. THESE TESTS WILL INCLUDE A HYDROSTATIC TEST AND AN OPERATING TEST.
- PUMPS HANDLING RAW WASTEWATER SHALL BE CAPABLE OF PASSING SPHERES OF AT LEAST 3 INCHES IN DIAMETER. PUMP SUCTION AND DISCHARGE OPENINGS SHALL BE AT LEAST 4 INCHES IN DIAMETER.
- SURVEY CONTROL TO BE PROVIDED AT PRE-CONSTRUCTION MEETING.

REVISIONS

Revision	Date	Description
0	4/27/2015	ISSUED FOR CONSTRUCTION


Designed by:
EA Engineering Analytics, Inc.
1800 Specht Point Road, Suite 209
Fort Collins, CO 80526
(970) 488-3111


HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

GENERAL NOTES

Karen M. Stearns
4-27-15

Drawn by:	RDP
Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	April 27, 2015
SHEET	G-2.0

Date Begin - End: 8/11/2014		Drilling Company: Custom Auger		BORING LOG B-1												
Logged By: N. Farny		Drill Crew: Nick														
Hor.-Vert. Datum: Not Available		Drilling Equipment: CME-55		Hammer Type - Drop: 140 lb. Cathead - 30 in.												
Plunge: -90 degrees		Drilling Method: Solid Stem Auger														
Weather: Sunny, 75°		Exploration Diameter: 4 in. O.D.														
FIELD EXPLORATION				LABORATORY RESULTS												
Approximate Elevation (feet)	Depth (feet)	Graphical Log	Latitude: 36.86657° N Longitude: -104.44256° W Approximate Ground Surface Elevation (ft.): 6,594.0 Surface Condition: Gravel		Sample Type	Blow Counts(BC)= Uncorr. Blow/s6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks	
			Lithologic Description													
			GRAVEL: 1 inch thick					CL							ASTM D 698 Method A=	
			Lean CLAY (CL): some sand, brown, dry to slightly moist, hard, white streaks												Max. Dry Unit Wt.: 114.2 pcf	
6590	5				BC=20 22	10"	CL	11.1	105.3	100	92	40	23			
			Sandy Lean CLAY (CL): non-plastic to low plasticity, reddish brown, dry to slightly moist, hard, white streaks, porous													
6585	10				BC=17 17	10"		8.6	89.7						Expansion/Compression=	
															Compression= 2.7% under 1	
															kst when wetted.	
6580	15		Silty Clayey SAND with Gravel (SC-SM): fine grained sand, fine grained gravel, sub-rounded, non-plastic, tan to brown, dry to slightly moist, dense to very dense				SC-SM	3.9	109.6	75	20	19	5		Gravel and auger grinding	
					BC=50/6"	6"									from about 12 to 18 feet	
															Expansion/Compression=	
															Compression= 2.7% under 1	
															kst when wetted.	
6575	20				BC=19 22 22	12"		5.2							Clay content of cuttings	
															increases and drilling action is	
															smoother at about 18 feet	
6570	25		Poorly-graded SAND with Gravel and Silt (SP-SM): fine grained gravel, medium to coarse grained sand, sub-angular, non-plastic, brown, dry to moist, very dense				SP-SM	6.6		62	11	20	2			
					BC=50/9"	6"										
6565	30		- some clay below about 29 feet					6.2								
					BC=30 41	8"										
6560	35		Pierre Shale Formation Weathered CLAYSTONE: medium to high plasticity												Drilling resistance increases	
			Pierre Shale Formation SHALE: medium to high plasticity, dark gray, dry to moist, very hard, laminated		BC=50/2"	2"									and drilling action is smoother	
															at about 32.5 feet	
			GROUNDWATER LEVEL INFORMATION: Groundwater was not encountered during drilling or after completion.													
			GENERAL NOTES: The exploration location and elevation are approximate and were estimated by Kleinfelder using a GPS device with an accuracy of 5 feet.													
			The exploration was terminated at approximately 34 ft. below ground surface. The exploration was backfilled with auger cuttings on August 12, 2014.													
			PROJECT NO.: 20151999		BORING LOG B-1										PLATE	
			DRAWN BY: NJF												B-1	
			CHECKED BY: ADT													
			DATE: 9/19/2014		Proposed Lift Station Structure and Receiving Manhole Structure Vicinity of Hospital Drive and Hereford Avenue Raton, New Mexico											
			REVISED: -												PAGE: 1 of 1	

Date Begin - End: 8/11/2014		Drilling Company: Custom Auger		BORING LOG B-2												
Logged By: N. Farny		Drill Crew: Nick														
Hor.-Vert. Datum: Not Available		Drilling Equipment: CME-55		Hammer Type - Drop: 140 lb. Cathead - 30 in.												
Plunge: -90 degrees		Drilling Method: Solid Stem Auger														
Weather: Sunny, 80°		Exploration Diameter: 4 in. O.D.														
FIELD EXPLORATION				LABORATORY RESULTS												
Approximate Elevation (feet)	Depth (feet)	Graphical Log	Latitude: 36.87051° N Longitude: -104.43967° W Approximate Ground Surface Elevation (ft.): 6,610.0 Surface Condition: Asphalt		Sample Type	Blow Counts(BC)= Uncorr. Blow/s6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks	
			Lithologic Description													
			ASPHALT: 4 inch thick overlay					CL							ASTM D 698 Method A=	
			ASPHALT: 8 inches thick												Max. Dry Unit Wt.: 113.2 pcf	
			Existing Fill												Opt. Water Content: 16.6%	
			Sandy Lean CLAY with Gravel (CL): fine grained gravel, fine grained sand, dark gray, moist, firm to hard													
6605	5				BC=4 4	10"	CL	17.7	105.8	79	54	35	20		Expansion/Compression=	
															Compression= 0.1% under 1	
															kst when wetted.	
			Lean CLAY with Sand (CL): fine grained sand, dark gray, moist, firm to hard												Gravel from about 6 to 7 feet	
6600	10				BC=8 11	3"		32.1								
6595	15		- white streaks at about 14 feet					20.8	103.6						Expansion/Compression=	
					BC=8 11	9"									Expansion= 0.3% under 1 kst	
															when wetted.	
6590	20				BC=10 13	8"	CL	18.7	106.0	100	81	33	18			
6585	25		Pierre Shale Formation Weathered CLAYSTONE: medium to high plasticity, brown to dark gray, moist, hard					116.6	113.4						Drilling resistance increases	
			Pierre Shale Formation SHALE: medium to high plasticity, dark gray, dry to moist, very hard, laminated		BC=11 19	10"									at about 23.5 feet	
															Expansion/Compression=	
															Expansion= 0.8% under 1 kst	
															when wetted.	
															Drilling resistance increases	
															at about 26 feet	
6580	30				BC=50/4"	4"		11.6	120.1							
			The exploration was terminated at approximately 29.5 ft. below ground surface. The exploration was backfilled with auger cuttings and asphalt cold patched at the surface on August 12, 2014.													
			GROUNDWATER LEVEL INFORMATION: Groundwater was not encountered during drilling or after completion.													
			GENERAL NOTES: The exploration location and elevation are approximate and were estimated by Kleinfelder using a GPS device with an accuracy of 5 feet.													
			The exploration was terminated at approximately 34 ft. below ground surface. The exploration was backfilled with auger cuttings on August 12, 2014.													
			PROJECT NO.: 20151999		BORING LOG B-2										PLATE	
			DRAWN BY: NJF												B-2	
			CHECKED BY: ADT													
			DATE: 9/19/2014		Proposed Lift Station Structure and Receiving Manhole Structure Vicinity of Hospital Drive and Hereford Avenue Raton, New Mexico											
			REVISED: -												PAGE: 1 of 1	

REVISIONS

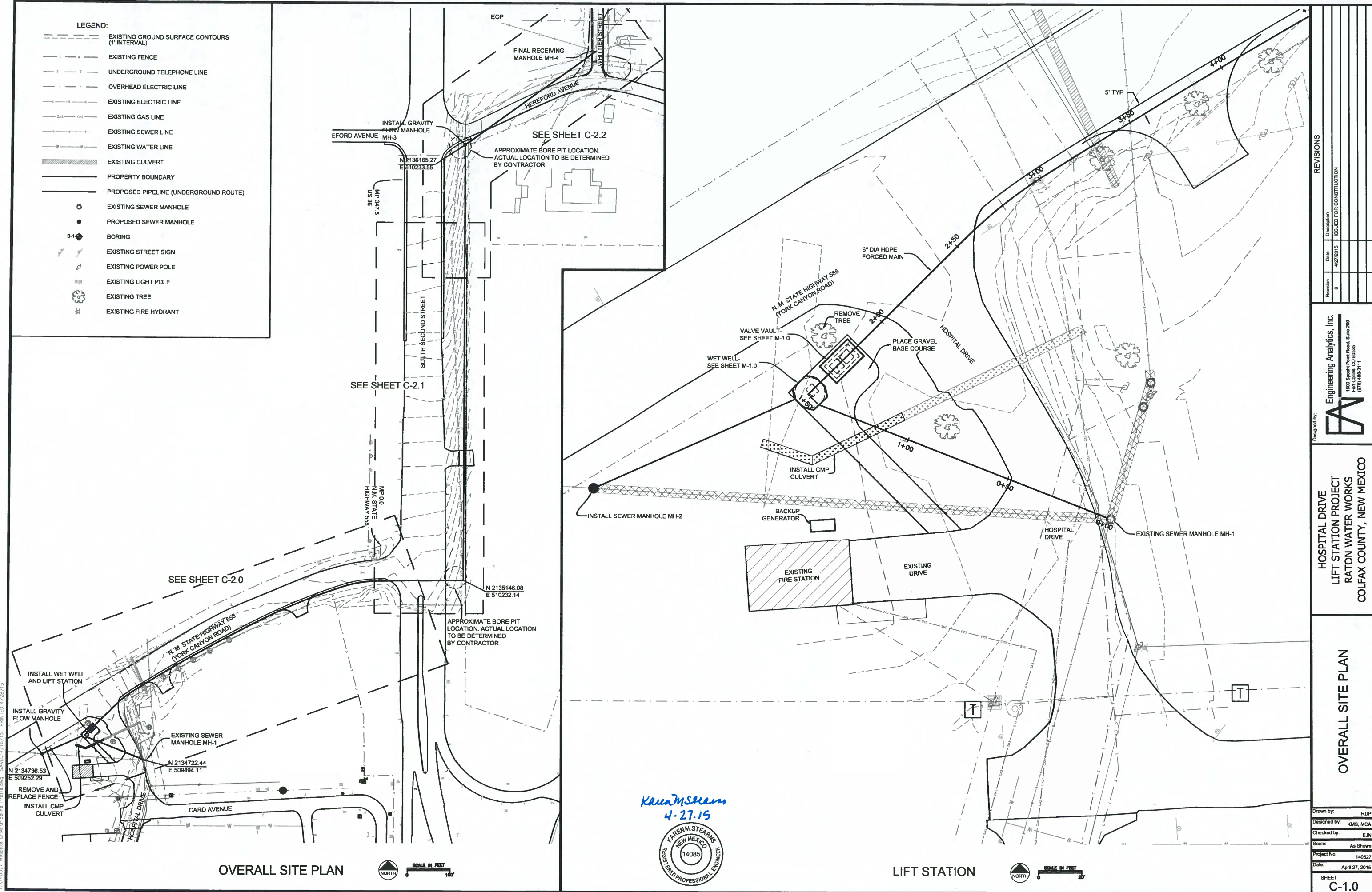
Revision	Date	Description
0	4/27/2015	ISSUED FOR CONSTRUCTION

Designed by: Engineering Analytics, Inc.

1000 South Park Road, Suite 209
Fort Collins, CO 80526
(970) 488-3111HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

BORING LOGS

Drawn by:	RDP
Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	April 27, 2015



T:\140527 Hospital Drive\Profile Profile.dwg, SAVED: 4/16/15, PRINTED: 4/28/15

OVERALL SITE PLAN

DESIGNED BY: **Engineering Analytics, Inc.**
1800 Street Road, Suite 200
Fort Collins, CO 80525
(970) 488-3111

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

Revision	Date	Description
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Designed by: KMS, MCA

Checked by: E.J.N.

Scale: As Shown

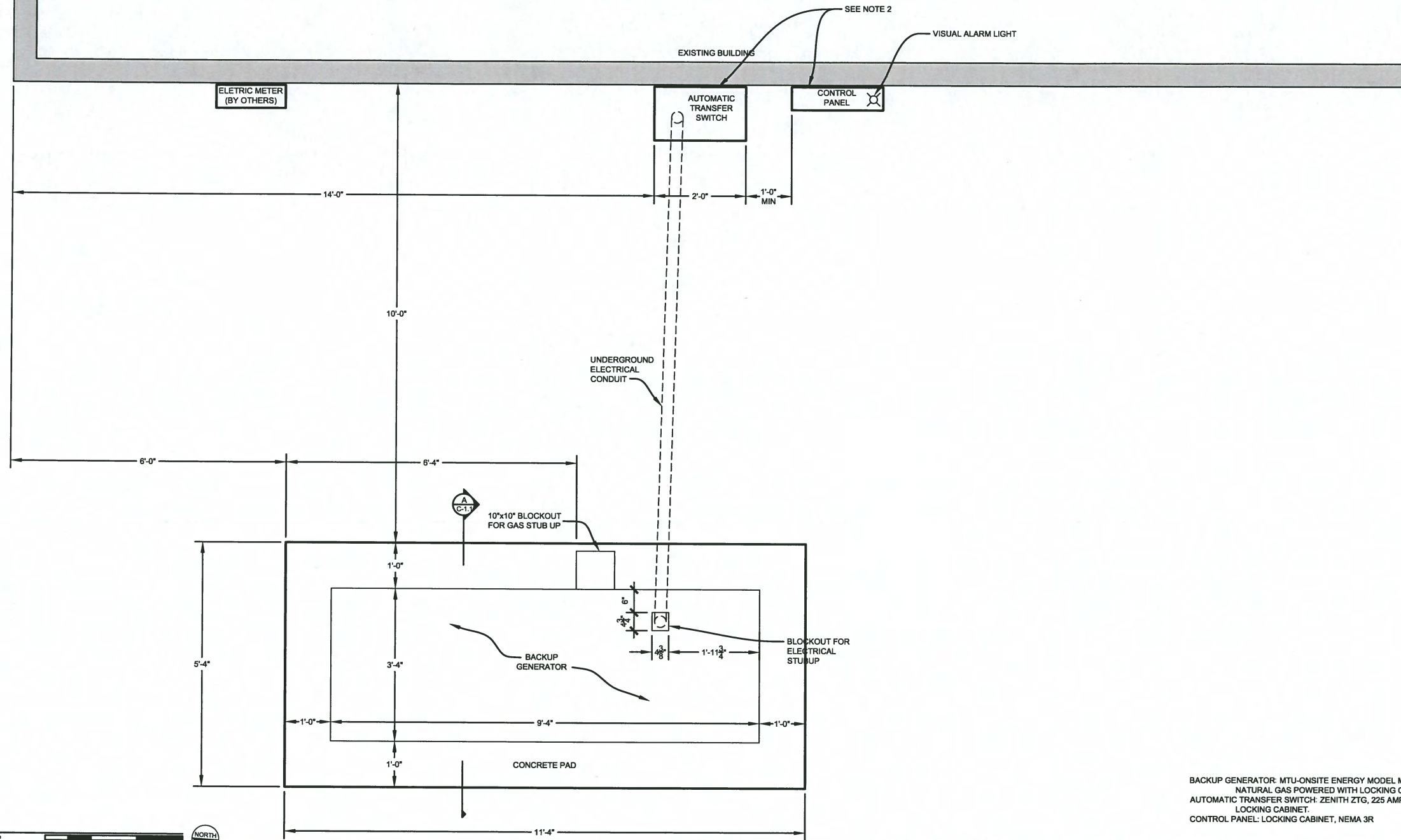
Project No. 140527

Date: April 27, 2015

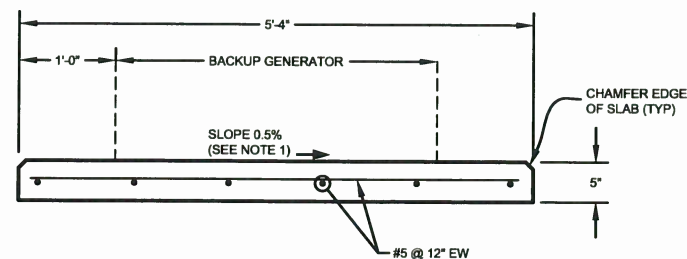
SHEET C-1.0

T:\140527 Hospital Drive\Standard Details.dwg, Saved: 4/13/15, PRINTED: 4/28/15

PLAN
SCALE: 3/4" = 1'-0"



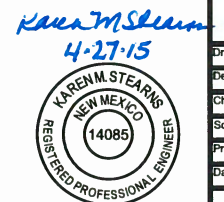
BACKUP GENERATOR: MTU-ONSITE ENERGY MODEL MTU8V0071GS60
NATURAL GAS POWERED WITH LOCKING CABINET.
AUTOMATIC TRANSFER SWITCH: ZENITH ZTG, 225 AMP, 3 POLE, WITH
LOCKING CABINET.
CONTROL PANEL: LOCKING CABINET, NEMA 3R



SECTION
A-C-1.1
SCALE: 1/2" = 1'-0"



- NOTES:
1. SLOPE PAD TO DRAIN. LEVEL GENERATOR PER MANUFACTURER'S SPECIFICATIONS. BOLT DOWN GENERATOR WITH EPOXY BOLTS PER MANUFACTURER'S SPECIFICATIONS.
 2. MOUNT CABINET ON EXISTING BUILDING OR SUPPORT ON UNISTRUT OR EQUIVALENT BOLTED TO CONCRETE PAD.
 3. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. MAXIMUM WATER CEMENT RATIO SHALL NOT EXCEED 0.45.



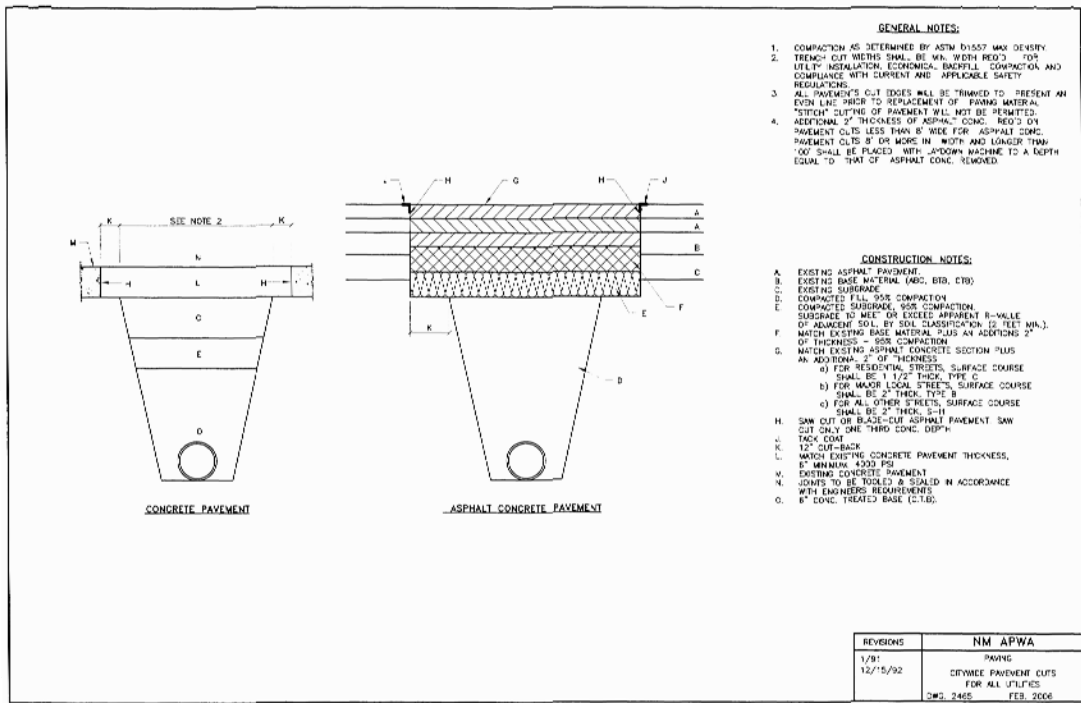
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Designed by: KMS, MCA
Checked by: E.J.N.
Scale: As Shown
Project No. 140527
Date: April 27, 2015
SHEET
C-1.1

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

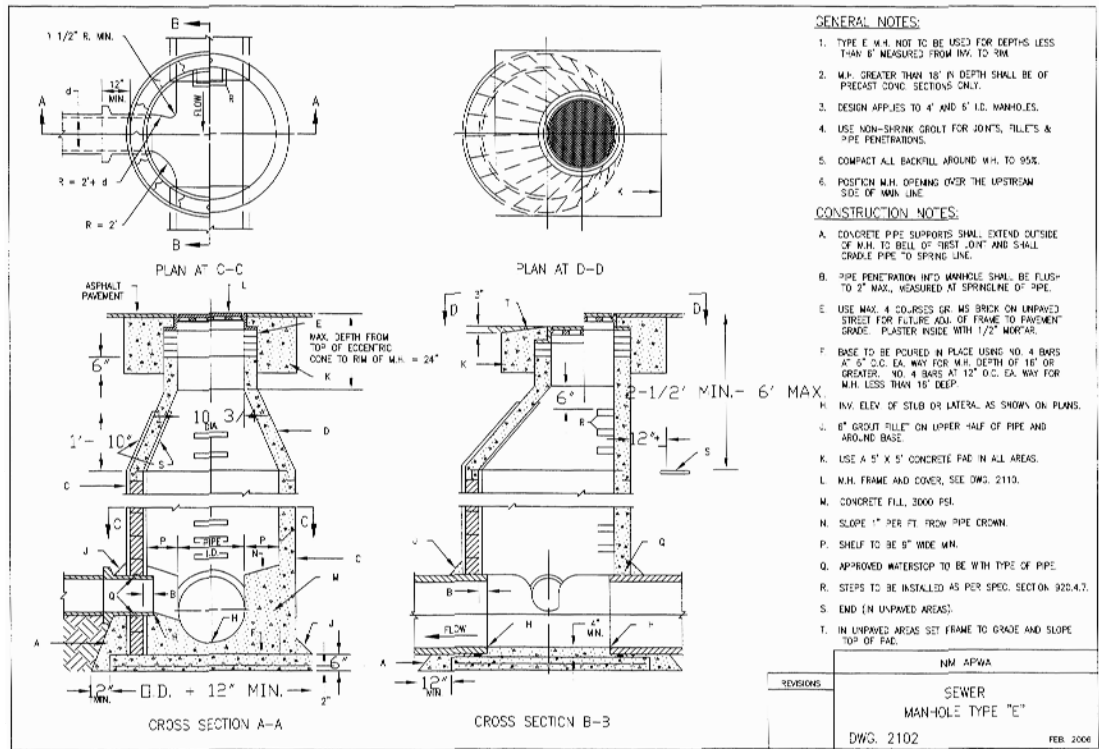
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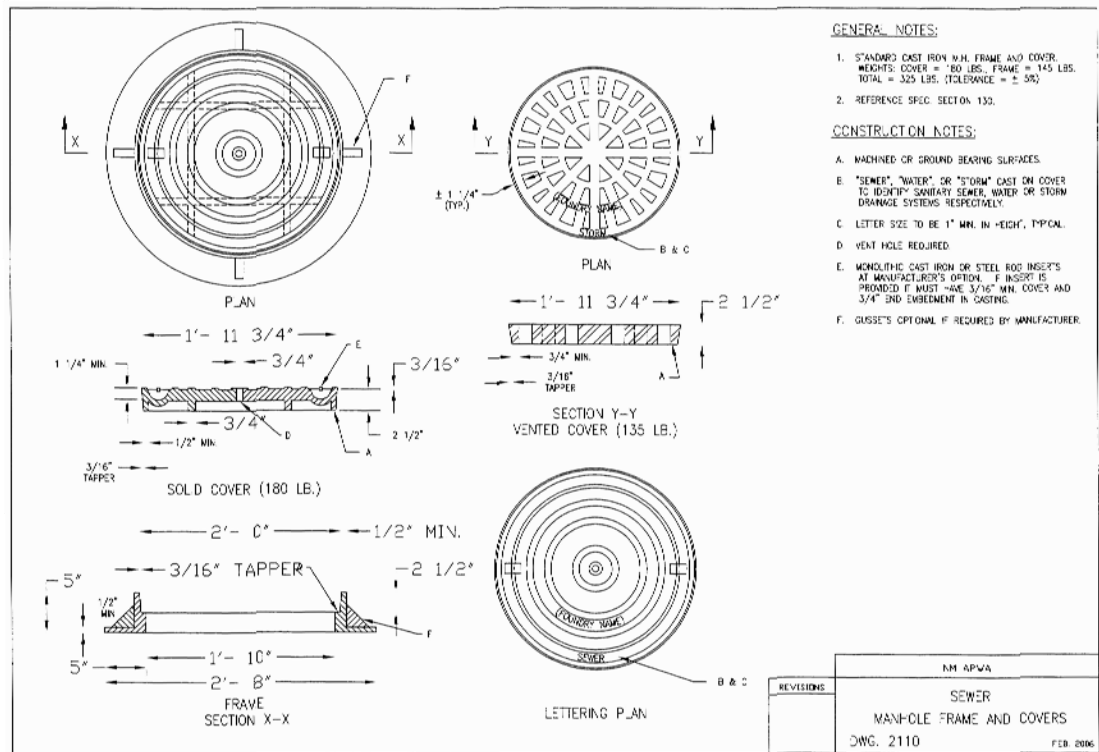
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2465 NM APWA PAVEMENT CUTS FOR ALL UTILITIES



2102 NM APWA SEWER MANHOLE TYPE "E"



2110 NM APWA SEWER MANHOLE FRAME AND COVERS

REVISIONS

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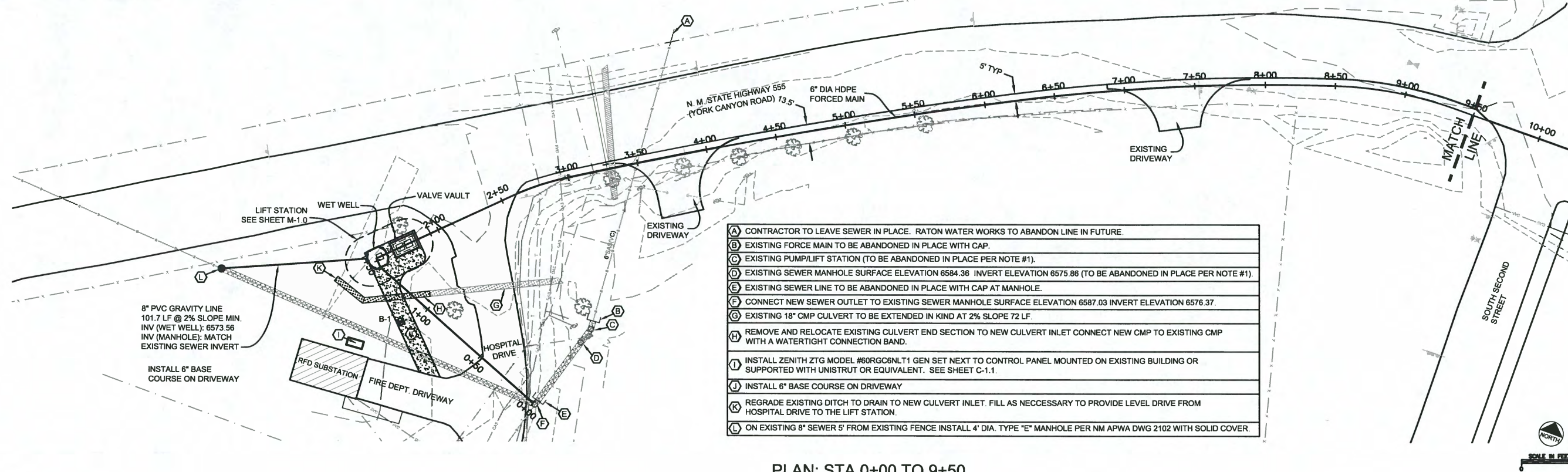
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLLAX COUNTY, NEW MEXICO

CIVIL DETAILS
NMDOT AND NM APWA
STANDARD DRAWINGS

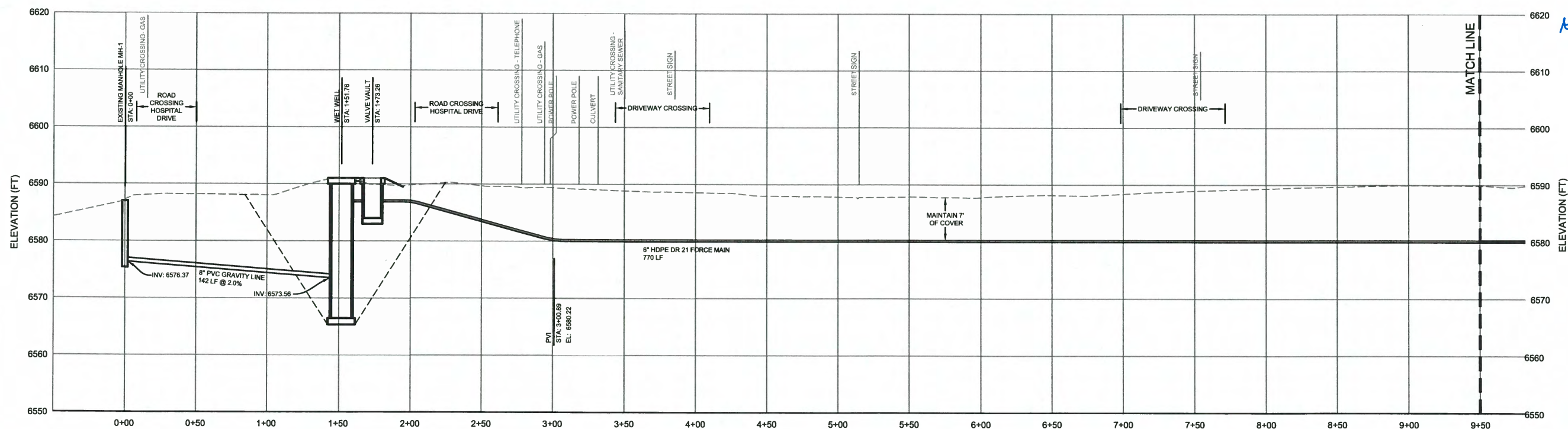
Drawn by: RDP
Designed by: KMS, MCA
Checked by: EUN
Scale: As Shown
Project No. 140527
Date: April 27, 2015

SHEET
C-1.2

NOTES:
1. EXISTING LIFT STATION WITH MANHOLE TO BE ABANDONED AFTER NEW LIFT STATION DEEMED FULLY OPERATIONAL. CONTRACTOR TO REMOVE LIDS OF LIFT STATION AND MANHOLE, CAP PENETRATING LINES FROM THE INSIDE, FILL STRUCTURES WITH GRANULAR FILL.



PLAN: STA 0+00 TO 9+50



PROFILE: STA 0+00 TO 9+50

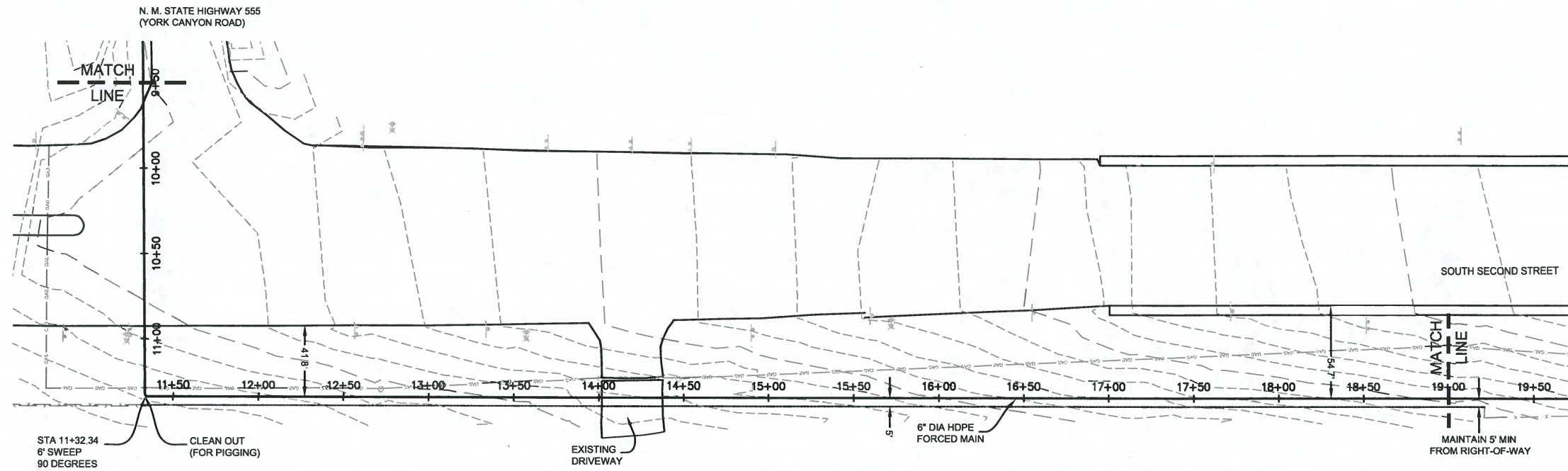
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Designed by: **Engineering Analytics, Inc.**
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Carmichael, CA 95605
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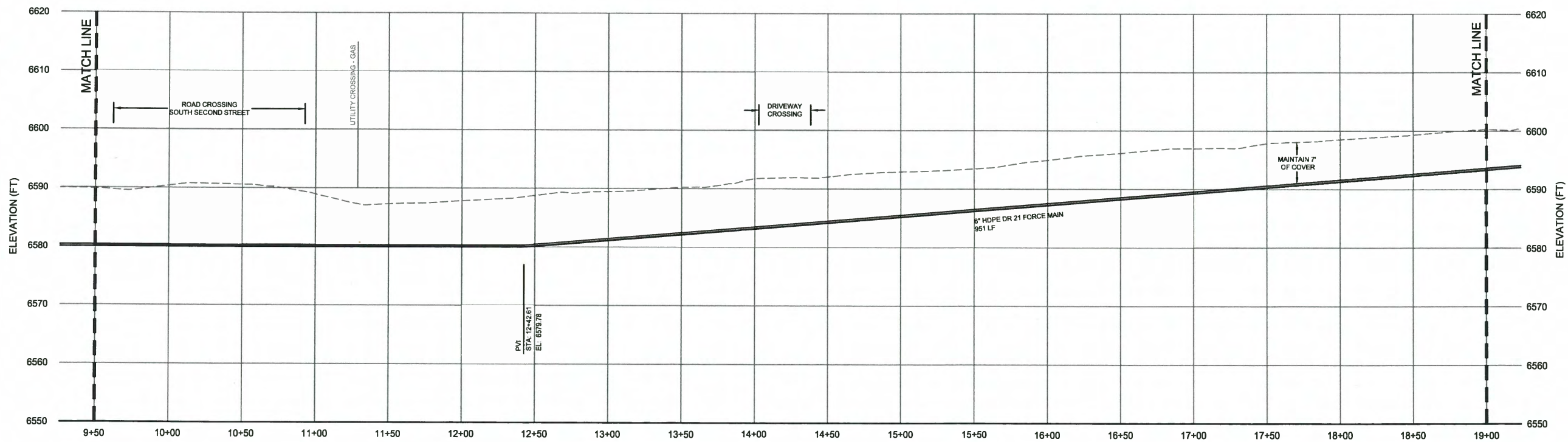
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PIPELINE PLAN AND
PROFILE STA 0+00 TO 9+50

Drawn by: RDP
Designed by: KMS, MCA
Checked by: EJM
Scale: As Shown
Project No: 140527
Date: April 27, 2015
SHEET
C-2.0



PLAN: STA 9+50 TO 19+00



PROFILE: STA 9+50 TO 19+00



Karen M. Stearns
4-27-15



REVISIONS

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0	4/27/2015	ISSUED FOR CONSTRUCTION

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EA Engineering Analytics, Inc.
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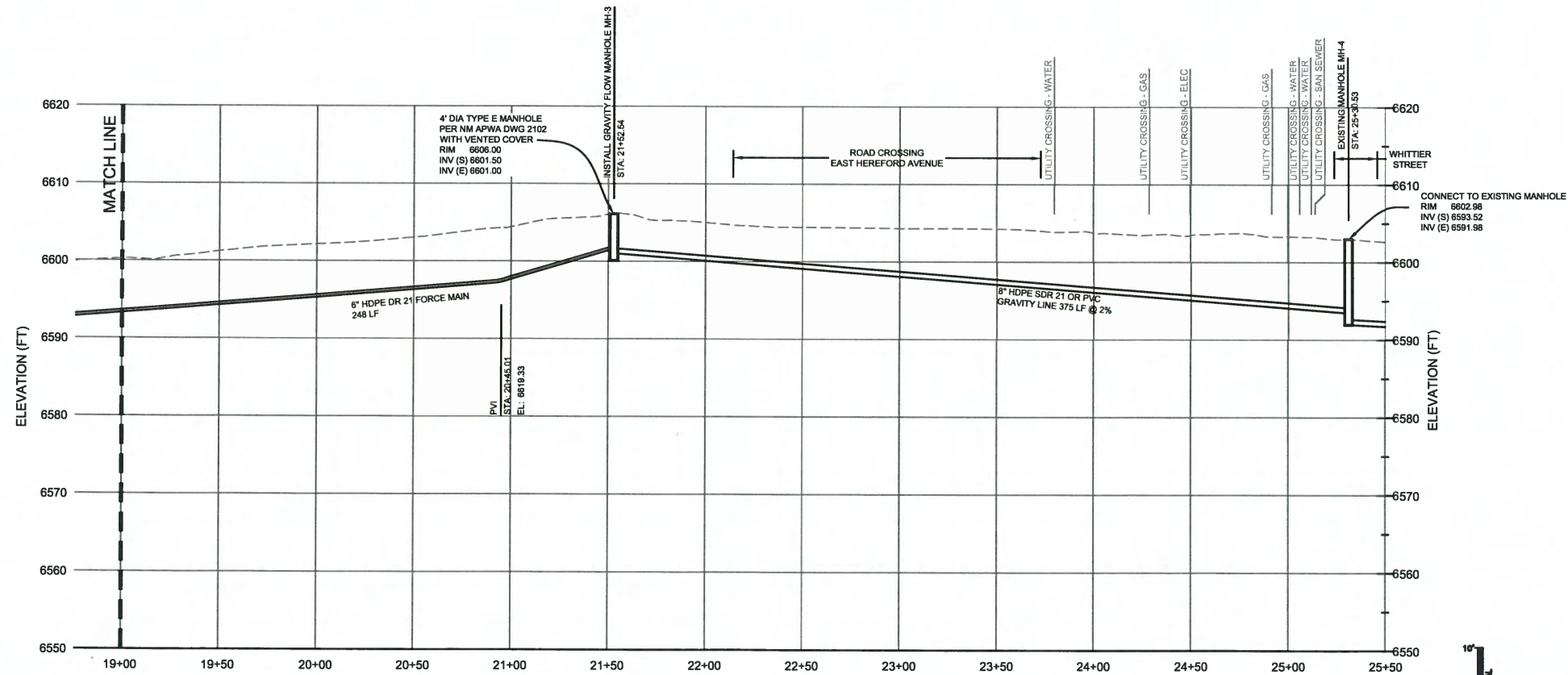
HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PIPELINE PLAN AND
PROFILE STA 9+50 TO 19+00

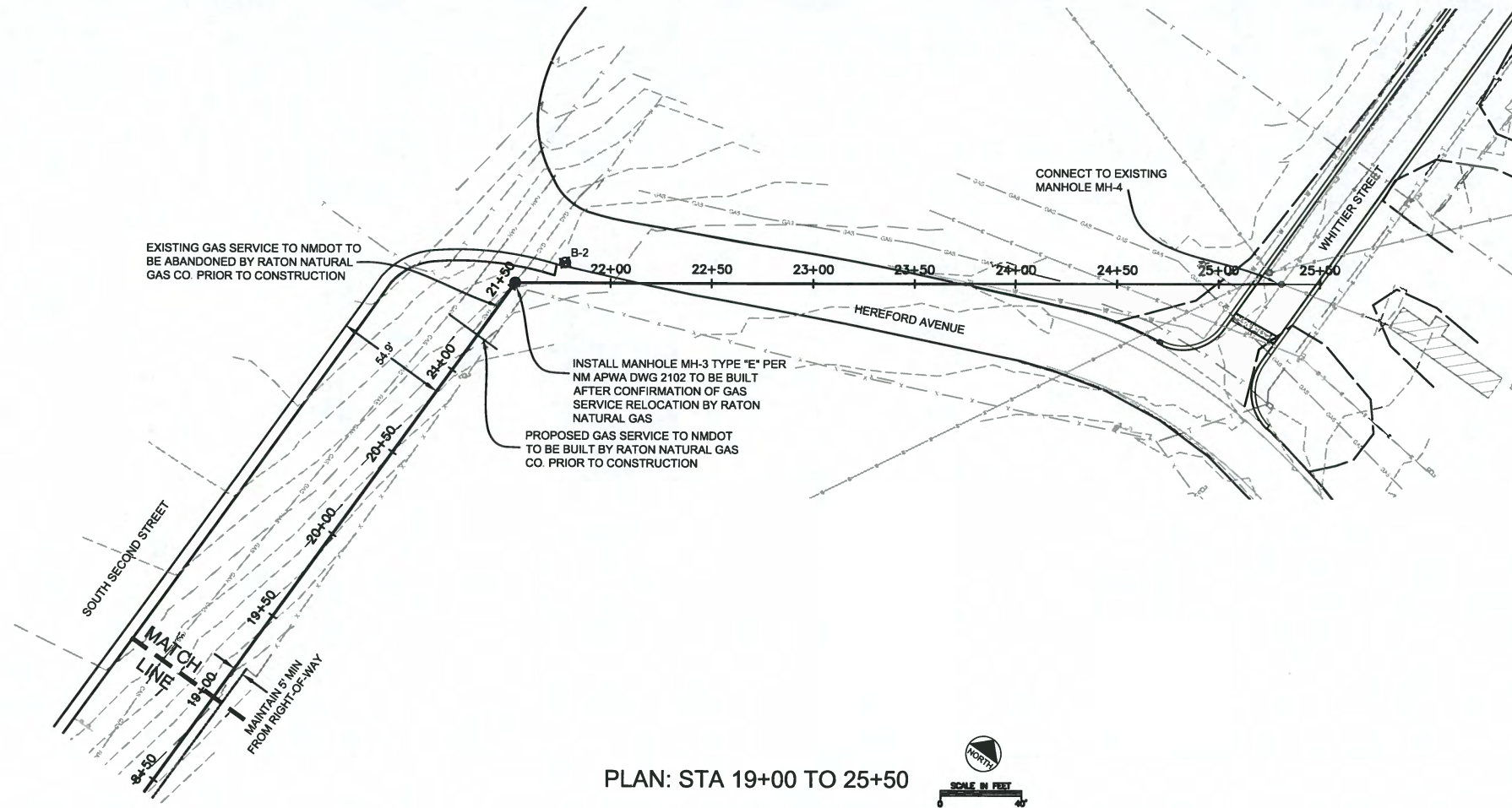
Drawn by: RDP
Designed by: KMS, MCA
Checked by: EJM
Scale: As Shown
Project No. 140527
Date: April 27, 2015

SHEET
C-2.1

T:\40327 Hospital Drive\pipe\Profile.dwg SAVED: 4/16/15 PRINTED: 4/28/15



PROFILE: STA 19+00 TO 25+50



PLAN: STA 19+00 TO 25+50

KAREN M. STEARNS
NEW MEXICO
14085
REGISTERED PROFESSIONAL ENGINEER
Karen M. Stearns
4-27-15

PIPELINE PLAN AND
PROFILE STA 19+00 TO 25+50

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

Designed by:
EA Engineering Analytics, Inc.
1600 Specht Point Road, Suite 208
Fort Collins, CO 80525
(970) 485-5111

REVISIONS		
Revision	Date	Description
0	4/27/2015	ISSUED FOR CONSTRUCTION

Drawn by:	RDP
Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	April 27, 2015
SHEET	C-2.2

	BALL VALVE
	PLUG VALVE
	CHECK VALVE
	MANUAL PLUG VALVE
	BLIND FLANGE
	FLANGED CONNECTION
	WEDGE LOCK CONNECTION
	REDUCER (SIZE CALLED OUT LARGE TO SMALL)
	HOSE CONNECTION
	MAGNETIC FLOWMETER
	SUBMERSIBLE PUMP

AG	ABOVE GROUND
AL	ALARM LIGHT
BBL	BARREL
BGS	BELOW GROUND SURFACE
BLDG	BUILDING
CMP	CORRUGATED METAL PIPE
CONT	CONTINUED
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EA	EACH
FTB	FROM TANK BOTTOM
FTT	FROM TANK TOP
GL	GROUND LEVEL
H	HIGH/HEIGHT
H/O/A	HAND/OFF/AUTO
HDPE	HIGH DENSITY POLYETHYLENE
IA	INSTRUMENT AIR
L	LOW
NC	NORMALLY CLOSED
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NO	NORMALLY OPEN
NOM	NOMINAL
PA	PLANT AIR
PLC	PROGRAMMABLE LOGIC CONTROLLER
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH (GAUGE)
R/G	RED, GREEN LIGHT
S/S	STOP, START
TBD	TO BE DETERMINED
TEFC	TOTALLY ENCLOSED, FAN COOLED
UG	UNDER GROUND
VFD	VARIABLE FREQUENCY DRIVE

M MOTOR
P PUMP

8"-101-FLD-HDPE

LINE SIZE	_____	_____	_____
LINE NUMBER	_____	_____	_____
SERVICE	_____	_____	_____
MATERIAL	_____	_____	_____

XX-YYY

XX VALVE TYPE

YYY VALVE NUMBER

BV BALL VALVE

CV CHECK VALVE

PV PLUG VALVE

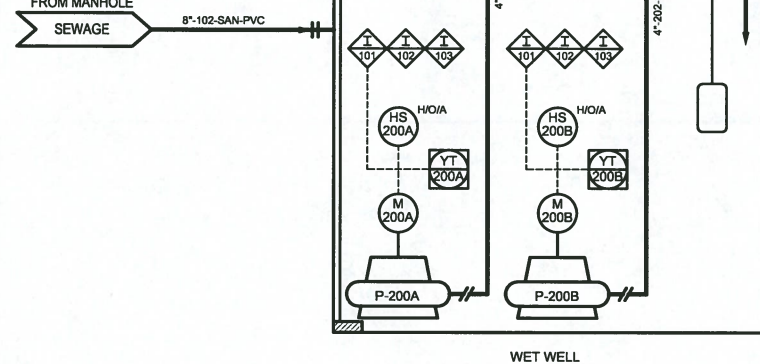
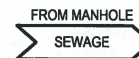
XX-YYY

XX INSTRUMENT LETTER DESIGNATION

YYY INSTRUMENT NUMBER

LT-100
SUBMERSIBLE
LEVEL TRANSMITTER
DWYER PBLTZ-15-150
(OR EQUIVALENT)

**F-200
MAGNETIC
FLOWMETER**
EMERSON - ROSEMOUNT
MODEL: 8750 WA
WITH REMOTE MOUNT
TRANSMITTER



NOTE:
1-1 EMERGENCY STOP BUTTONS
WILL BE LOCATED AT CONTROL
BOX AND NEAR LIFT STATION.

	FIRST LETTER		SUCCEEDING LETTER		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ALARM	ALARM		
B	BURNER, FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	
D	DENSITY (MASS), OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING (DIMENSIONAL)		GLASS VIEWING DEVICE		
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	DISCRETE, TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N	SHUTDOWN		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	STATUS		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION, CALCULATE	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			LOUVER, VALVE, DAMPER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

VALVE NO.	TYPE	CONNECTION	SIZE	NORMAL SETTING	VALVE FUNCTION	LOCATION	LINE NO.	QTY / OUT OF TOTAL	DESCRIPTION
CV-201	CHECK	FLANGE	4"	N/A	PREVENT BACKFLOW	VALVE VAULT	4"-201-SAN-SS	1/2	SWING CHECK VALVE, 150 LB, FLG, 304 SS
CV-202	CHECK	FLANGE	4"	N/A	PREVENT BACKFLOW	VALVE VAULT	4"-202-SAN-SS	2/2	SWING CHECK VALVE, 150 LB, FLG, 304 SS
PV-203	PLUG	FLANGE	4"	NO	CONTROL	VALVE VAULT	4"-201-SAN-SS	1/3	PLUG VALVE, 150 LB, FLG, 304 SS
PV-204	PLUG	FLANGE	4"	NO	CONTROL	VALVE VAULT	4"-202-SAN-SS	2/3	PLUG VALVE, 150 LB, FLG, 304 SS
PV-205	PLUG	FLANGE	8"	NO	CONTROL	VALVE VAULT	6"-203-SAN-SS	3/3	PLUG VALVE, 150 LB, FLG, 304 SS
PV-206	PLUG	FLANGE	3"	NC	EMERGENCY BYPASS	VALVE VAULT	3"-205-SAN-HOSE	1/1	PLUG VALVE, 150 LB, FLG, 304 SS

15101471

Revision	Date	Description
0	4/27/2015	ISSUED FOR CONSTRUCTION

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LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

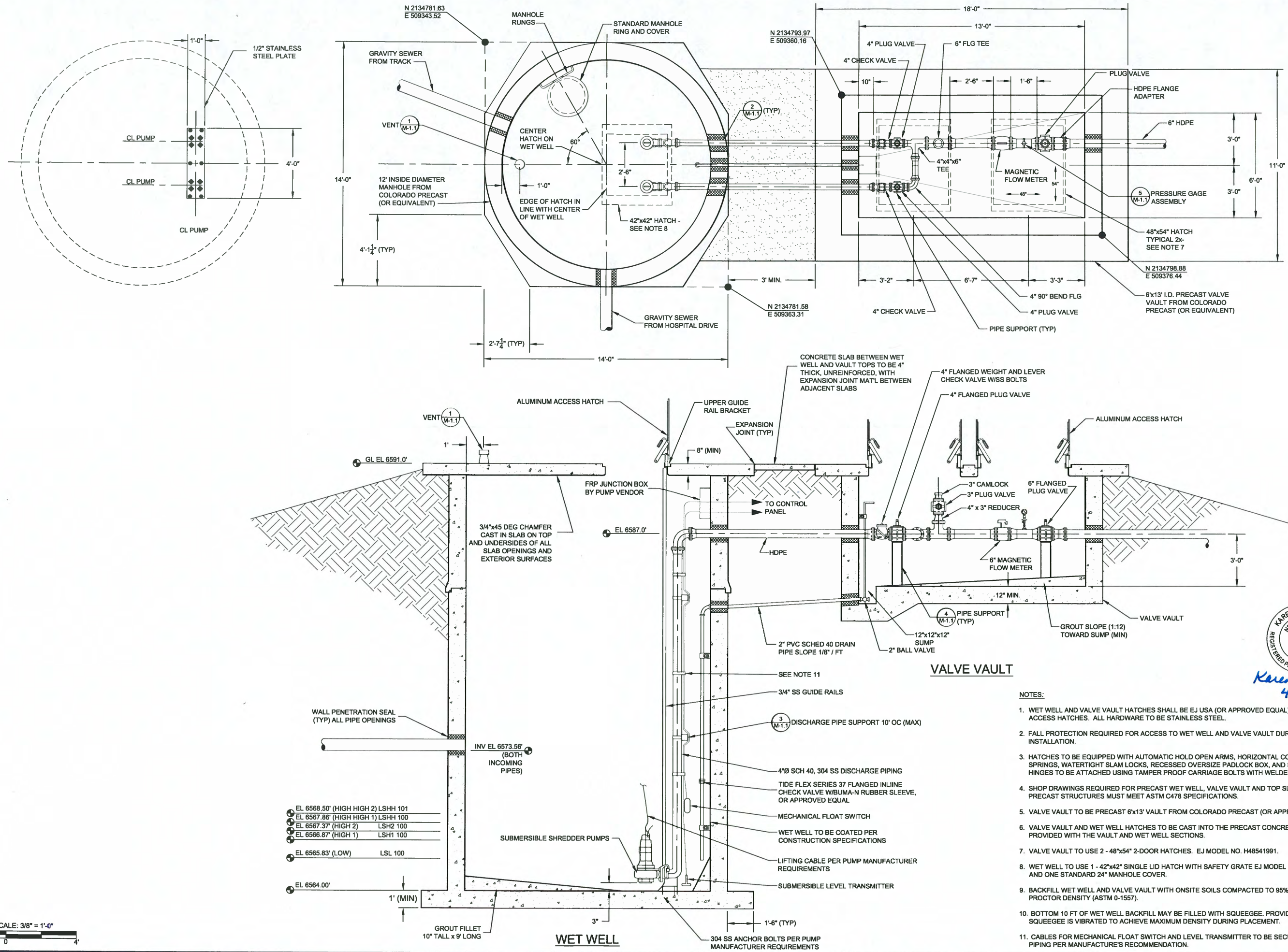
PROCESS AND INSTRUMENTATION DIAGRAM

Drawn by:	RDP
Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	April 27, 2015

HEET
P-1.0

T:\40327 Hospital Drive\Mechanical.dwg - SAVED 4/13/15 PRINTED: 4/28/15

SCALE: 3/8" = 1'-0"



NOTES:

1. WET WELL AND VALVE VAULT HATCHES SHALL BE EJ USA (OR APPROVED EQUAL) ALUMINUM ACCESS HATCHES. ALL HARDWARE TO BE STAINLESS STEEL.
2. FALL PROTECTION REQUIRED FOR ACCESS TO WET WELL AND VALVE VAULT DURING INSTALLATION.
3. HATCHES TO BE EQUIPPED WITH AUTOMATIC HOLD OPEN ARMS, HORIZONTAL COMPRESSION SPRINGS, WATERTIGHT SLAM LOCKS, RECESSED OVERSIZE PADLOCK BOX, AND SAFETY CHAINS. HINGES TO BE ATTACHED USING TAMPER PROOF CARRIAGE BOLTS WITH WELDED NUTS.
4. SHOP DRAWINGS REQUIRED FOR PRECAST WET WELL, VALVE VAULT AND TOP SLABS. ALL PRECAST STRUCTURES MUST MEET ASTM C478 SPECIFICATIONS.
5. VALVE VAULT TO BE PRECAST 6'x13' VAULT FROM COLORADO PRECAST (OR APPROVED EQUAL).
6. VALVE VAULT AND WET WELL HATCHES TO BE CAST INTO THE PRECAST CONCRETE COVERS PROVIDED WITH THE VAULT AND WET WELL SECTIONS.
7. VALVE VAULT TO USE 2 - 48\"x54\" 2-DOOR HATCHES. EJ MODEL NO. H48541991.
8. WET WELL TO USE 1 - 42\"x42\" SINGLE LID HATCH WITH SAFETY GRATE EJ MODEL NO. H42421291 AND ONE STANDARD 24\" MANHOLE COVER.
9. BACKFILL WET WELL AND VALVE VAULT WITH ONSITE SOILS COMPACTED TO 95% MODIFIED PROCTOR DENSITY (ASTM D-1557).
10. BOTTOM 10 FT OF WET WELL BACKFILL MAY BE FILLED WITH SQUEEGEE, PROVIDED THE SQUEEGEE IS VIBRATED TO ACHIEVE MAXIMUM DENSITY DURING PLACEMENT.
11. CABLES FOR MECHANICAL FLOAT SWITCH AND LEVEL TRANSMITTER TO BE SECURED TO RISER PIPING PER MANUFACTURE'S RECOMMENDATION.

REVISIONS

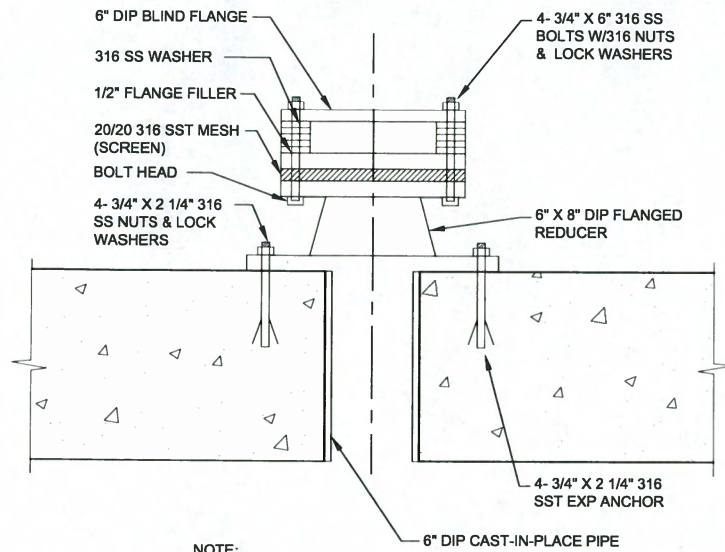
Revision	Date	Description
0	4/27/2015	ISSUED FOR CONSTRUCTION

Designed by: Engineering Analytics, Inc.

HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

LIFT STATION PLAN

Drawn by:	RDP
Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No.	140527
Date:	April 27, 2015
SHEET	M-1.0

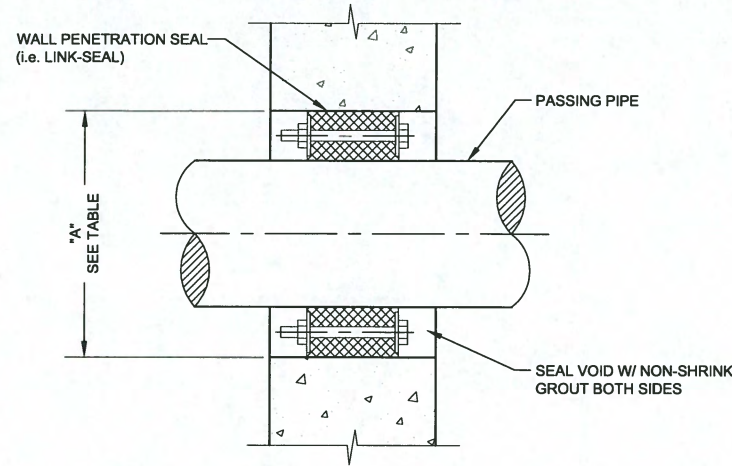


NOTE:

THE PENETRATION FOR THE VENT ASSEMBLY SHALL BE LOCATED 1' INSIDE THE INTERIOR WET WELL WALL AND CENTERED OPPOSITE FROM THE DISCHARGE PIPE.

1
M-1.0

WET WELL VENT DETAIL

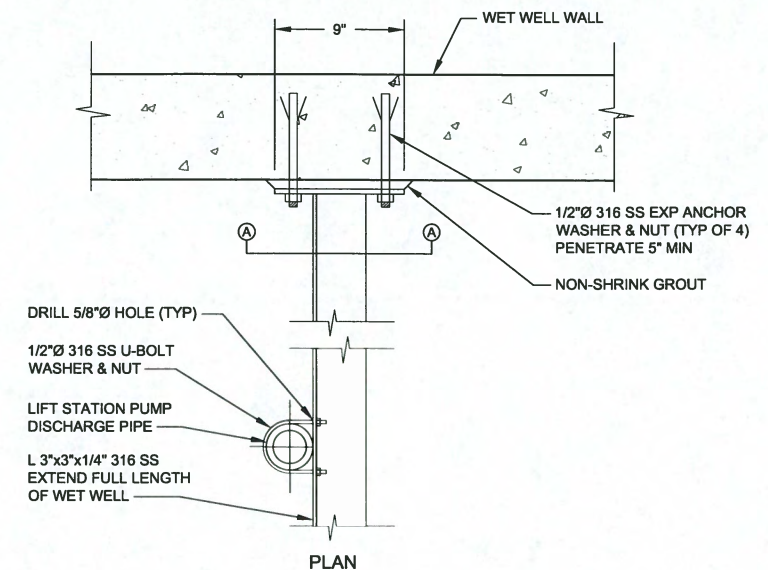


NOTES:
1. ALL DIMENSIONS ARE GIVEN IN INCHES.
2. USE ON EXISTING CONSTRUCTION.

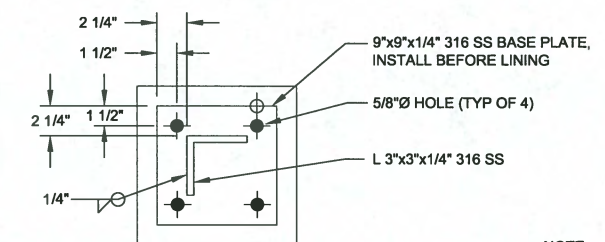
PIPE SIZE	"A"	PIPE SIZE	"A"
2	4	12	16
2-1/2	4	14	18
3	5	16	20
4	6	18	24
6	10	20	24
8	12	24	30
10	14		

2
M-1.0

CORE DRILL PENETRATION DETAIL



PLAN

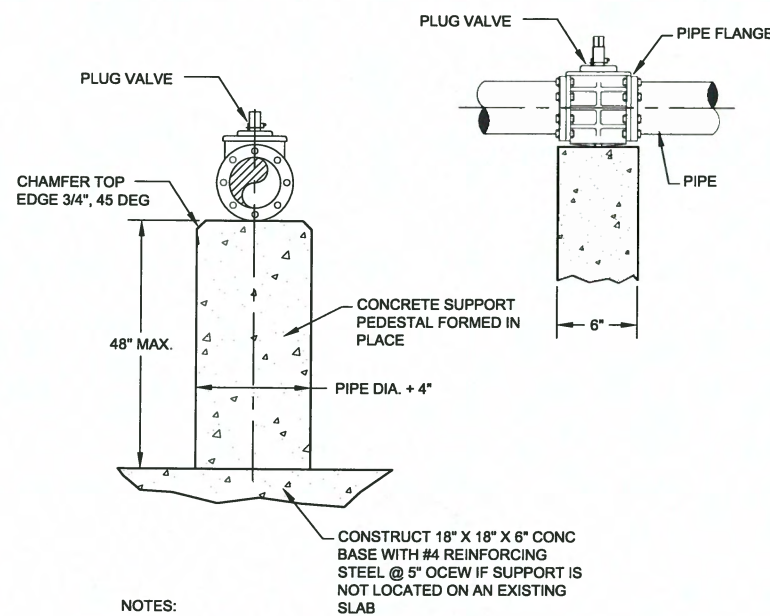


SECTION A-A

NOTE:
MAX DISTANCE BETWEEN
SUPPORTS SHALL NOT
EXCEED 10 FEET.

3
M-1.0

LIFT STATION PUMP DISCHARGE PIPE SUPPORT DETAIL

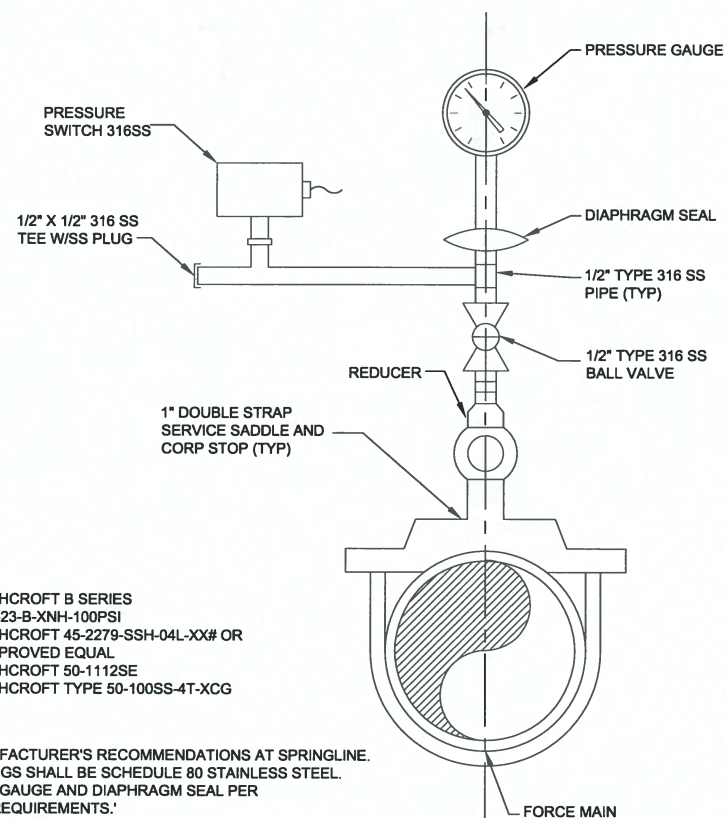


NOTES:

1. CONCRETE SHALL BE 4000 PSI, UNREINFORCED.
2. SEE PLANS AND SECTIONS FOR PIPE ELEVATION REQUIREMENT.
3. PIPE SUPPORT SUITABLE FOR PIPE SIZES 3" THROUGH 24" DIA.
4. SUPPORT STRAIGHT PIPE SECTION, FITTING OR PLUG VALVE. DO NOT PLACE UNDER CHECK VALVE.

4
M-1.0

CONCRETE PIPE SUPPORT DETAIL



PRESSURE SWITCH: ASHCROFT B SERIES
B4-23-B-XNH-100PSI
PRESSURE GAUGE: ASHCROFT 45-2279-SSH-04L-XX# OR
APPROVED EQUAL
SNUBBER: ASHCROFT 50-1112SE
DIAPHRAGM SEAL: ASHCROFT TYPE 50-100SS-4T-XCG

NOTES:

1. TAP PIPE PER MANUFACTURER'S RECOMMENDATIONS AT SPRINGLINE.
2. ALL PIPE AND FITTINGS SHALL BE SCHEDULE 80 STAINLESS STEEL.
3. INSTALL PRESSURE GAUGE AND DIAPHRAGM SEAL PER MANUFACTURER'S REQUIREMENTS.
4. PRESSURE RANGE FOR GAUGE TO BE BASED ON OPERATION CONDITIONS.

5
M-1.0

PRESSURE GAGE DETAIL

REVISIONS

Revision	Date	Description
0	4/27/2015	ISSUED FOR CONSTRUCTION

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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

LIFT STATION DETAILS

Karen M. Stearns
4-27-15

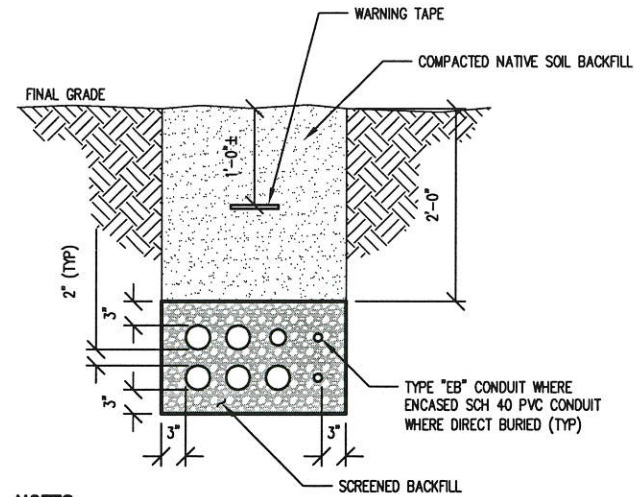
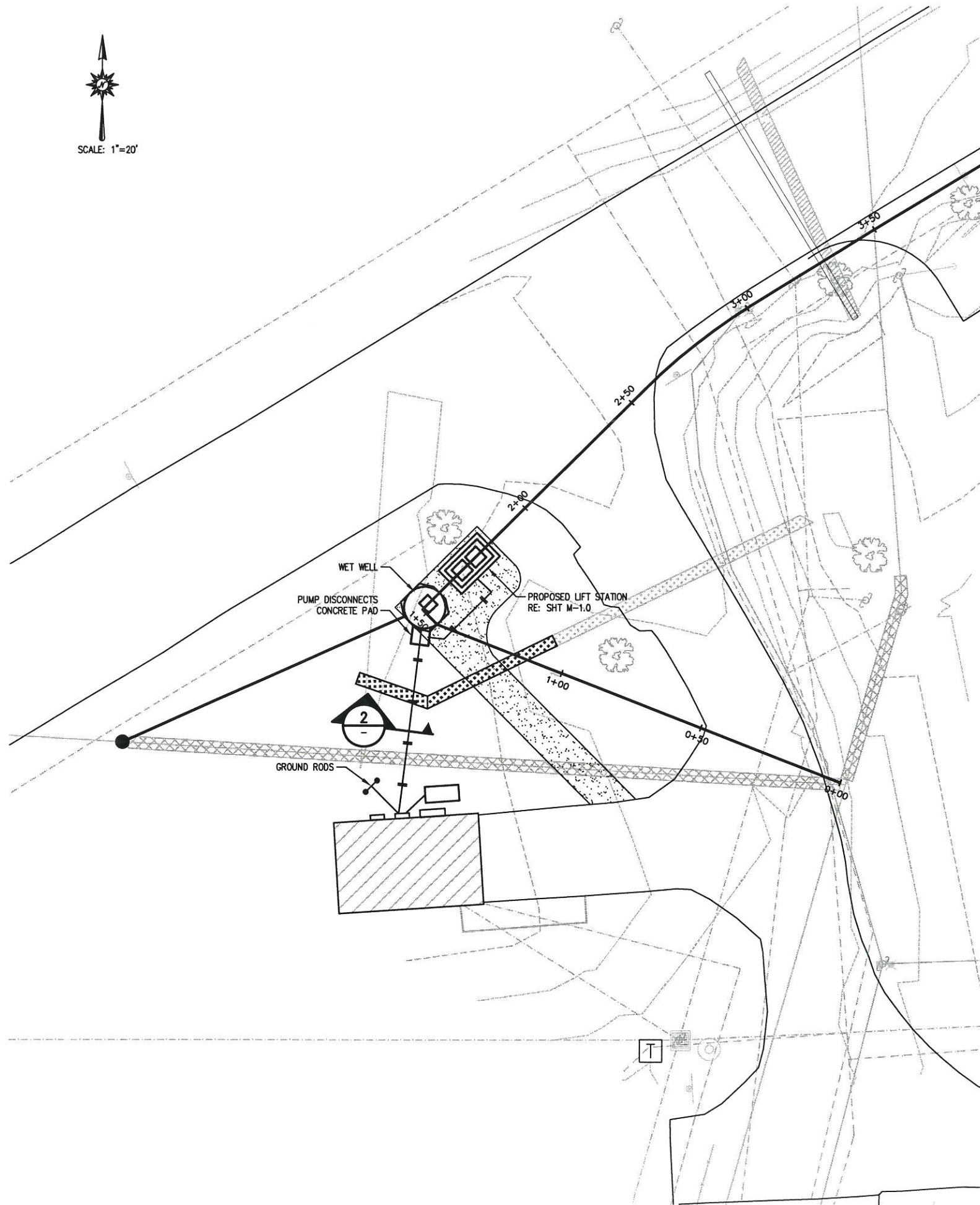


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Designed by:	KMS, MCA
Checked by:	EJN
Scale:	As Shown
Project No:	140527
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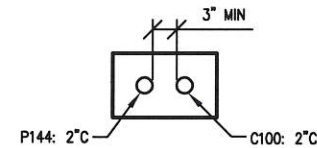
SCALE: 1"=20'



NOTES:

1. BACK FILL OF TRENCHES IN EXISTING PAVED AREAS SHALL BE DONE WITH NATIVE SOILS MECHANICALLY COMPACTED OR FLOW ABLE FILL THAT WILL SET UP AND PROVIDE COMPACTING FOR QUICK TRENCH CLOSURE.
2. REFER TO ELECTRICAL PLANS FOR QUANTITY OF DUCTS IN EACH TRENCH.
3. ALL RISER CONDUIT BENDS AND ABOVE GROUND CONDUIT SHALL BE RIGID METAL CONDUIT. PROVIDE PVC TO METAL COUPLING AT ENDS OF STRAIGHT UNDERGROUND RUNS.

1 DUCT BANK DETAIL
1"=1'-0"



2 ELECTRICAL DUCT SECTION
1"=1'-0"

REVISIONS	
Revision	Description



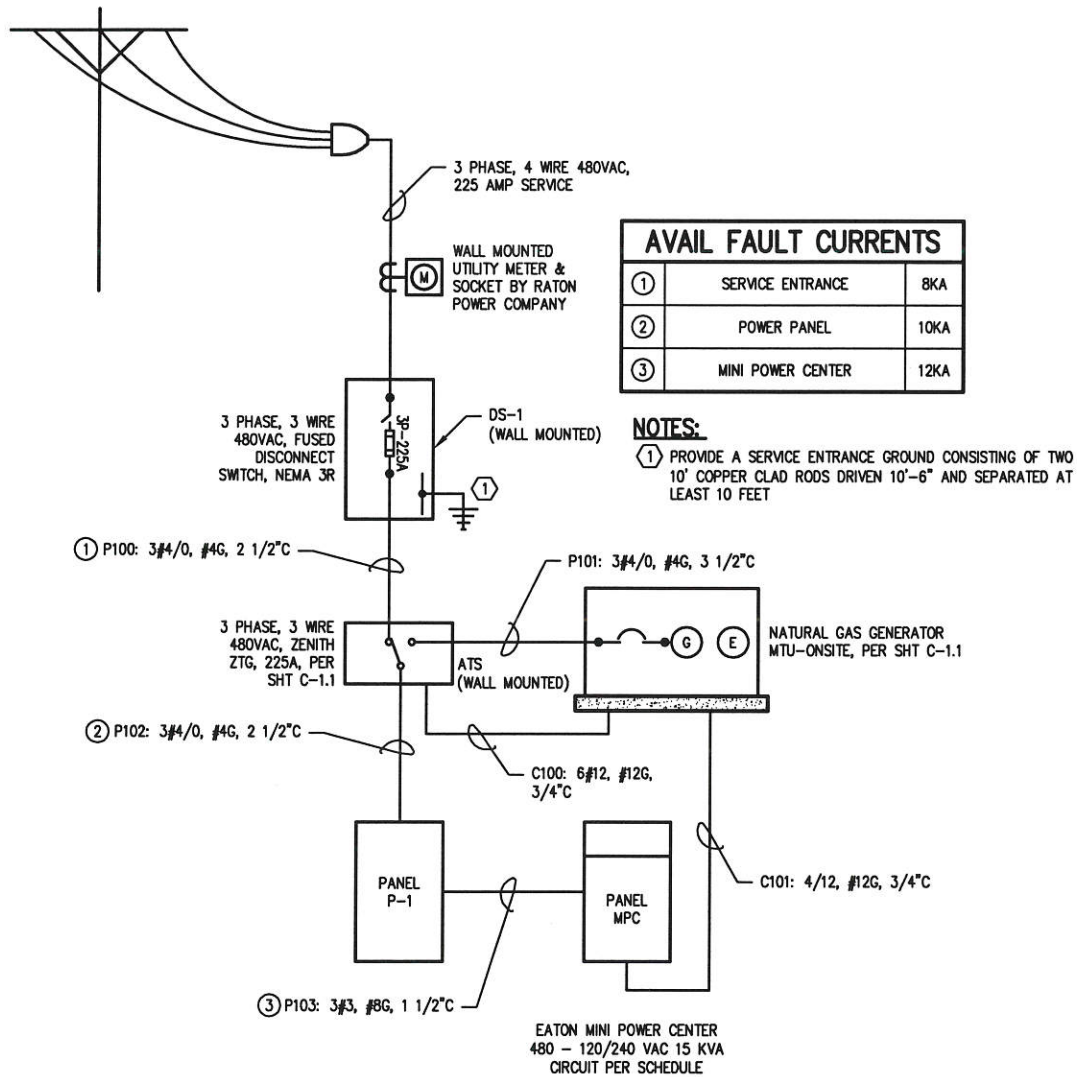
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Fort Collins, CO 80525
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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

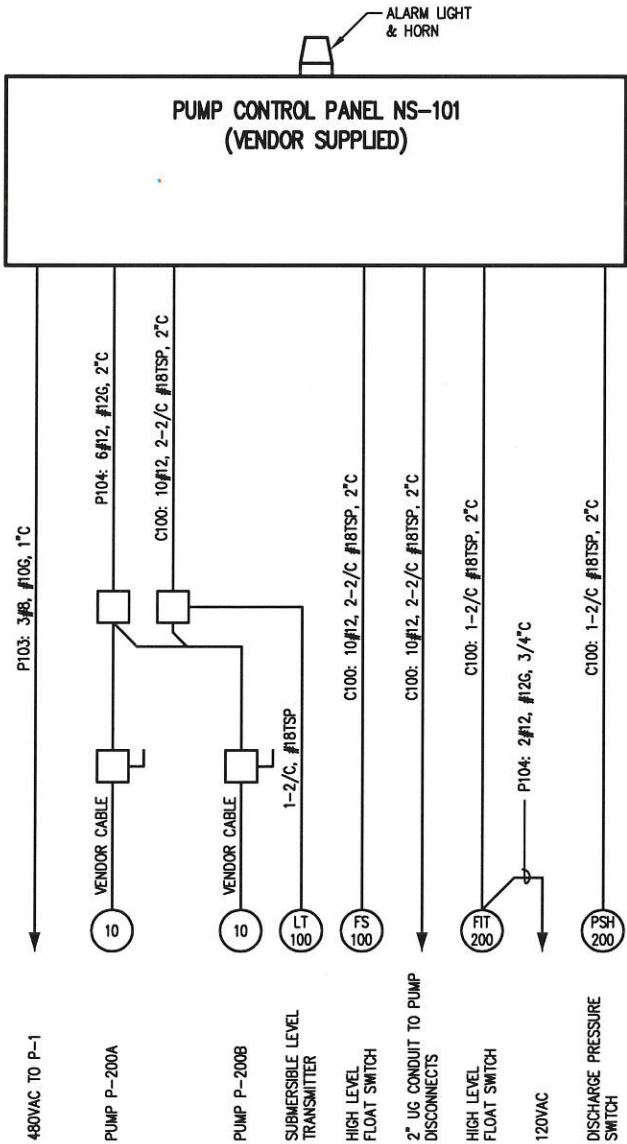
ELECTRICAL
SITE PLAN

Drawn by:	KPR
Designed by:	NET
Checked by:	EJN
Scale:	As Shown
Project No.	110421
Date:	April 28, 2015

SHEET
E-1.0



MOTOR DRIVEN EQUIPMENT LIST																
Area	Item Name	Tag	Status	Load Power Information				Protection					Conduit/Wire			
				Volts	Phase	Hp	FLA	Circuit Breaker	Disc Size	NEMA Rating	VFD or Starter	Starter Size	Starter Location	Feed From	Copper XHHW	Conduit Size
Lift Station	Wetwell Submersible Pump	P-200A	New	480	3	10	14.0	30	30	4X	Starter	1			12	3/4
	Wetwell Submersible Pump	P-200B	New	480	3	10	14.0	30	30	4X	Starter	1			12	3/4
	Heat and Lighting Loads	LP-1	New	240	1	0	60.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
			New	480	3	0	0.0	0	0	4X	Starter				0	0
						88.0										



PUMP CONTROL PANEL ONE-LINE

REVISIONS

Revision	Date	Description

FEI ENGINEERS

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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

ELECTRICAL ONE-LINE
DIAGRAM

Drawn by: KPR

Designed by: NET

Checked by: E.JN

Scale: As Shown

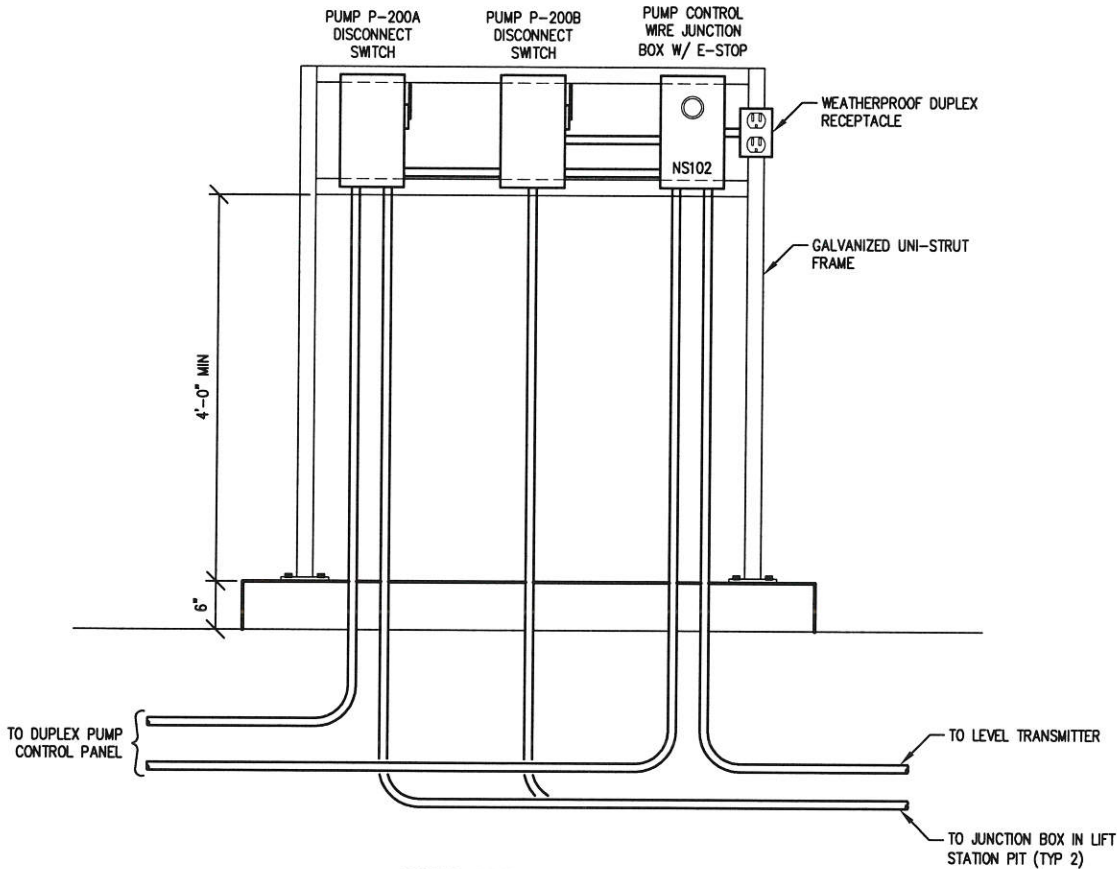
Project No: 110421

Date: April 28, 2015

SHEET E-2.0

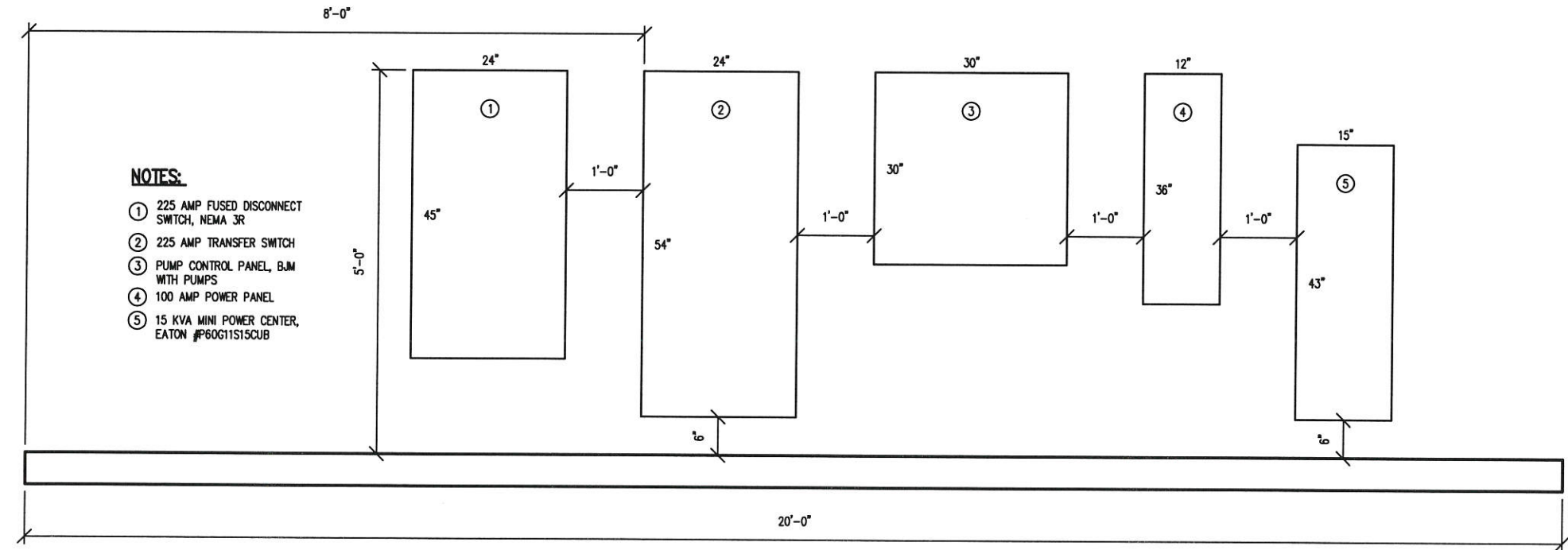
Phase Voltage:	480	NEW				100 MCB
Line Voltage:	277	PANEL "P-1"				100 Bus Amperage
Phase:	3	Mounting: Wall				Isc Rating
LOAD	VA			CKT	BKR	LOAD
	A	B	C			
Pump Control Panel	26604			1	40/3	Mini Power Center
Pump Control Panel		26604		3	40/3	Mini Power Center
Pump Control Panel			26604	5	40/3	Mini Power Center
				7		
				9		
				11		
				13		
				15		
				17		
Total:	26604	26604	26604			
Phase Total:	31404	31404	31404			
Phase Amps:	38	38	38			
Total Load (KVA):	94					

Phase Voltage: 240		NEW		60 MCB		
Line Voltage: 120		PANEL "MPC"		60 Bus Amperage		
Phase: 1		Mounting: Wall		Isc Rating		
Description		Circuit Breaker	Connected Load (VA)		Circuit Breaker	Description
			#		#	
Generator Battery Charger		20A	1 1600	960	2 20A	Exterior Lights
Generator Jacket Water Heater		20A	3 1200	720	4 20A	Receptacles
Spare		20A	5		6 20A	Spare
			7		8	
			9		10	
			11		12	
			13		14	
			15		16	
			17		18	
Total Per Side:			2800	1680		
TOTAL DEMAND						
4.48 KVA						
37.33 AMPS						



PUMP WIRING DETAIL

- NOTES:
1. DUPLEX PUMP CONTROL PANEL, POWER PANEL, AND MINI POWER CENTER TO BE WALL-MOUNTED 4' ABOVE GRADE.
 2. USE STEEL CONDUIT ABOVE GRADE.



NOTES:

- 1 225 AMP FUSED DISCONNECT SWITCH, NEMA 3R
- 2 225 AMP TRANSFER SWITCH
- 3 PUMP CONTROL PANEL, B.M. WITH PUMPS
- 4 100 AMP POWER PANEL
- 5 15 KVA MINI POWER CENTER, EATON #P60G11S15CUB

ELECTRICAL EQUIPMENT ELEVATION - NORTH WALL

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REVISIONS

Revision	Date	Description

FEI ENGINEERS

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HOSPITAL DRIVE
LIFT STATION PROJECT
RATON WATER WORKS
COLFAX COUNTY, NEW MEXICO

PANEL SCHEDULES

Drawn by: KPR

Designed by: NET

Checked by: E.J.N.

Scale: As Shown

Project No: 110421

Date: March 20, 2015

SHEET E-3.0